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(58) Field of search
UK CL (Edition K) E1D DCE DCF DCG DCH DF151
INT CL[5] E01C
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(54) Slab e.g. for paving

(57) A paving slab comprises at least one piece of natural stone 11 or the like material forming one of its major faces and backed by a cementitious mix 13, the whole being of uniform thickness. A fine cementitious mix 12 fills the spaces between stones 11. The cement and concrete contains an SBR additive. The slab is moulded on a vibrating table mould with side walls which may be flexible to produce various shapes.

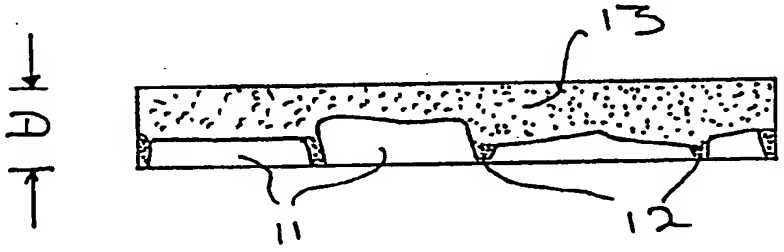

Fig 2a

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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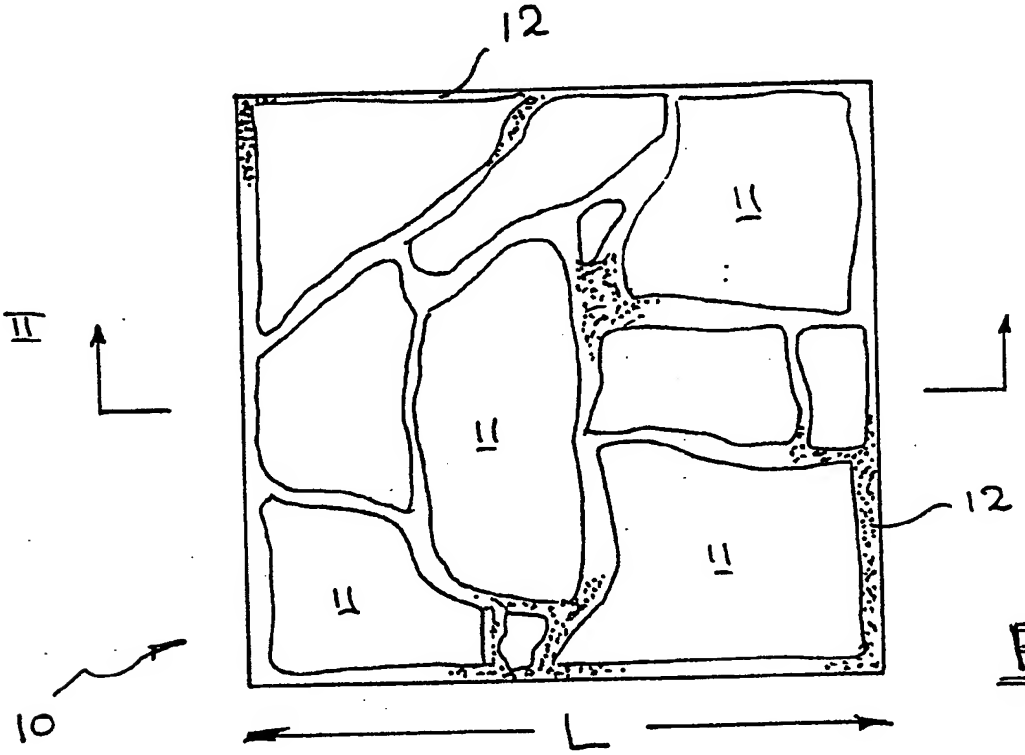

Fig 1

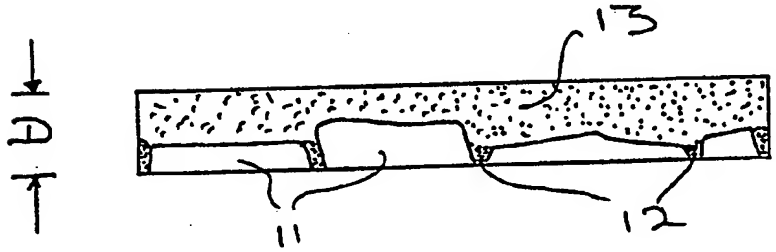

Fig 2

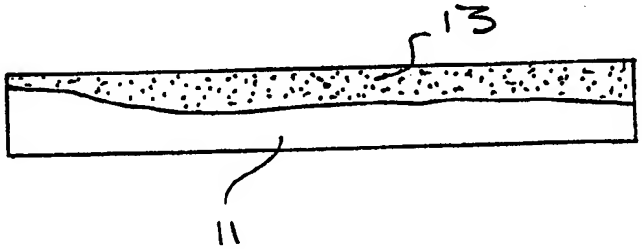

Fig 3

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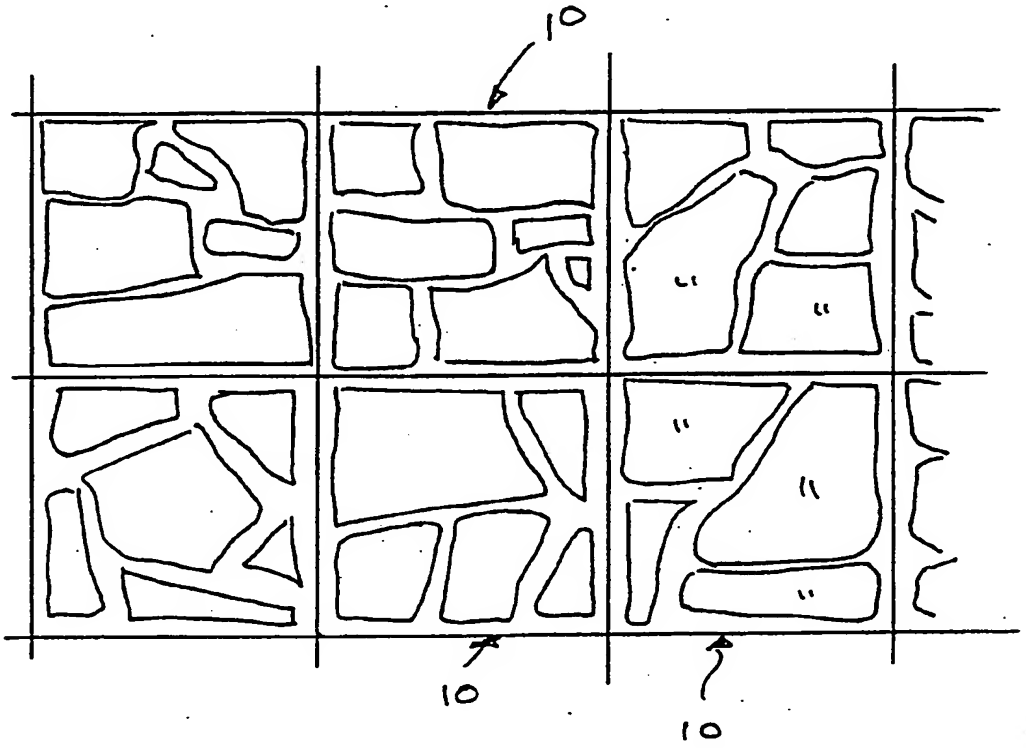

Fig 4

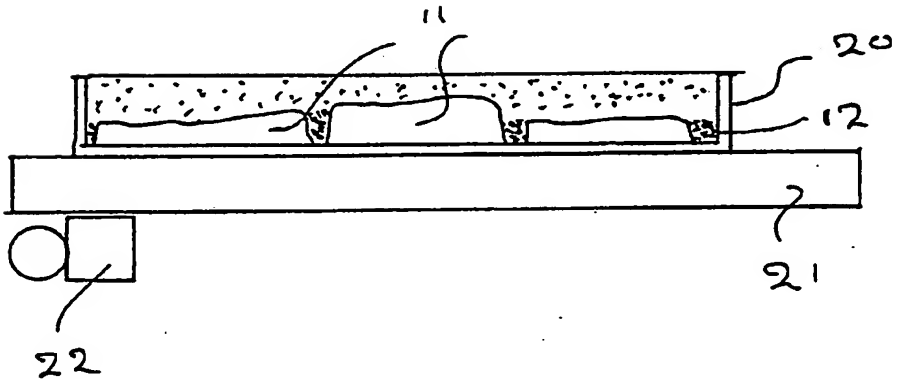

Fig 5

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CONSTRUCTIONAL ELEMENT

This invention concerns a constructional element of plate-like form suitable for use as a paving flag, wall cladding, an architectural feature panel or the like.

A highly appreciated paving material is natural stone, but, unless such is cut to uniform thickness at great cost, it will generally be of random thickness and individual pieces may have rear surfaces which are far from flat. When working with such material, even the most skilled pavier has difficulty in producing a finished surface which is acceptably smooth and flat and the finished surface is in any event prone to deterioration with time due to sinking and tilting movements of individual pieces of stone, such as those initially set on a greater thickness of sand or the like for example to obtain the original finished surface.

It is an object of the present invention to provide a constructional element suitable, amongst other things, for use as a paving flag and which overcomes the problems aforesaid.

According to the present invention there is provided a constructional element in the form of a plate-like slab comprising at least one piece of natural

stone or the like material forming one of its major faces and backed by a cementitious mix, the whole being of uniform thickness.

The plate-like slab may be square or rectangular.

Said major face may be comprised by a plurality of pieces of material arranged in closely spaced relationship in the fashion of 'crazy-paving'.

The spaces between the adjacent pieces of material may be filled with a fine cementitious mix which may contain a resin additive.

The resin additive may comprise an SBR material.

The backing may be a relatively course concrete aggregate which itself may contain a resin additive such as an SBR material.

The invention includes methods of manufacturing the contructional elements aforesaid.

The invention will be further apparent from the following description, with reference to the several figures of the accompanying drawings, which show, by way oi example only, paving flags embodying same.

Of the drawings:-

Figure 1 shows a top plan view of a paving flag;

Figure 2 shows a cross-section through the paving flag on the line II-II of Figure 1;

Figure 3 shows a cross-section through another paving flag;

Figure 4 shows a plan view of an area paved with flags of the kind shown in Figure 1; and

Figure 5 shows a cross-section through apparatus for the production of the paving flags.

Referring firstly to Figures 1 and 2, it will be seen that the paving flag, generally indicated at 10, is in the form of a plate-like slab of square shape having sides of length L which may be 450 mm of 600 mm for example and of uniform thickness D, typically 65 mm.

The front major face of the flag 10 is comprised by a plurality of pieces 11 of natural stone arranged in

closely spaced relationship in the fashion of 'crazy-paving'.

The spaces between the adjacent pieces 11 and around the perimeter of the flag 10 are filled with a fine cementitious mix 12 containing a resin additive such as an SBR material.

As best seen from Figure 2 the pieces 11 may be of varying thickness and individual pieces may be of non-uniform thickness and have rear surfaces which are other than flat.

The pieces 11 are backed by a relatively course concrete aggregate 13 which may also contain a resin additive such as an SBR material to give the uniform thickness D.

The paving flag of Figure 3 is similar to that of Figure 1 but comprises a single piece of stone 11 sawn to the size of the flag but being of non-uniform thickness.

The flags are manufactured in an open-topped tray-like mould 20 (see Figure 5) mounted on a table 21 equipped with vibration means 22.

Pieces of stone 11 are arranged within the mould, the gaps between the adjacent pieces 11 and between the pieces 11 and the sides of the mould are filled with the mix 12. The backing mix 13 is then added and levelled to the upper rim of the mould.

It will be appreciated that it is not intended to limit the invention to the above example only, many variations, such as might readily occur to one skilled in the art, being possible, without departing from the scope thereof.

Thus, for example the elements may be made utilising slate or other material instead of stone.

The elements need not be of square or rectangular shape - they may be hexagonal for example, or of random shape, the latter being produced in moulds having flexible side walls which can be bent to surround a desired assembly of stone pieces.

The elements may be finished with a sealant coating of suitable synthetic resin to prevent algae and similar growth and preserve the natural stone colour.

CLAIMS

1. A constructional element in the form of a plate-like slab comprising at least one piece of natural stone or the like material forming one of its major faces and backed by a cementitious mix, the whole being of uniform thickness.

2. An element according to claim 1, wherein the plate-like slab is square or rectangular.

3. An element according to claim 1 or claim 2, wherein said major face is comprised by a plurality of pieces of material arranged in closely spaced relationship in the fashion of 'crazy-paving'.

4. An element according to claim 3, wherein the spaces between the adjacent pieces of material are filled with a fine cementitious mix.

5. An element according to claim 5, wherein said fine cementitious mix contains a resin additive.

6. An element according to claim 5, wherein the resin additive is an SBR material.

7. An element according either claim 5 or claim 6, wherein the backing is a relatively course concrete aggregate.

8. An element according to any preceding claim, wherein the backing contains a resin additive.

9. An element according to claim 8, wherein the resin additive comprises an SBR material.

10. A method of making a constructional element comprising the steps of providing an open-topped tray-like mould, arranging at least one piece of stone within the mould, filling the spaces between adjacent pieces of stone and between the pieces of stone and the sides of the mould with a fine cementitious mix and filling the mould to its top with a relatively course cementitious mix.

11. A method according to claim 10, wherein the sides of the mould are flexible and are bent to surround a desired assembly of stone pieces.

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